

REMARKS

As a preliminary matter, applicant appreciates the indication of allowable subject matter in claims 2-15 and 17-18. Claims 2, 3, 4, 5, 6, 17 and 18 have been rewritten in independent form, and allowance is respectfully requested.

Independent claims 1 and 16 stand rejected under § 103 on the basis of Hirano et al. and Sarraf et al. Applicant traverses this rejection because the references do not disclose or suggest, alone or in combination, the “bandwidth switching unit” or “feed-forward compensation unit” of independent claim 1, or the bandwidth switching step or feed-forward control step of independent claim 16.

In the present invention, when the head arrives at a predetermined position, during the ramp loading operation, the bandwidth is increased, and when the head passes the predetermined position, the bandwidth is restored to its original value. Specifically, in Fig. 7 of the present application, the bandwidth switching unit 47 increases and restores the bandwidth with the head position information from the position determination unit 49 as input data. Alternatively, feed-forward compensation can be performed instead of the increase and restoration of the bandwidth.

Unlike the present invention, in Sarraf, a gain bandwidth reducing circuit 42 reduces and restores the bandwidth, and the conditions for reducing and restoring the bandwidth are determined by the states of a track jump operation, which is one type of seek operation. Thus, although the term “bandwidth” is used in Sarraf, the technical subject matter thereof is different from that of the present invention.

The present invention and Hirano and Sarraf have different objects, as well.

The object of Sarraf is to reduce a gain-bandwidth product of a closed loop servo control system during a track jump operation, so as to thereby minimize the acoustic noise in a seek operation controller of a disk drive system. During a track jump operation, a control signal Tj is enabled and is input to a gain bandwidth reducing circuit 42, to reduce the gain-bandwidth product of a feedback loop system.


The object of Hirano is to provide a method of controlling head speed and a method of detecting a head position. The method of Hirano includes steps of detecting the head speed, integrating the head speed to obtain a moving distance, and calculating a head position with a stopper position or the like as a reference position.

The object of the present invention is to prevent undesired decrease or increase of the head speed during ramp loading and unloading operations, to realize stable ramp loading and unloading operations. To attain this object, in the present invention, the moving speed of an actuator is integrated from a reference position to calculate a head position, and when the head arrives at a predetermined position, the bandwidth of a ramp load speed control loop is appropriately increased, or feed-forward control can be executed, if desired. In this manner, stable loading/unloading operations can be realized by decreasing the bandwidth appropriately. Accordingly, withdrawal of this rejection is respectfully requested.

For the foregoing reasons, applicants believe that this case is in condition for allowance, which is respectfully requested. The examiner should call applicants' attorney if an interview would expedite prosecution.

Respectfully submitted,

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